

**(57) Abstract:** The present invention provides crystalline LuxS, machine readable media embedded with the three-dimensional atomic structure coordinates of LuxS, and subsets thereof, and methods of using them.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/30684

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/205 C07K14/305 C07K14/285 C30B7/00 G01N33/68  
G06F17/50 C07K1/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

MEDLINE, BIOSIS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>HILGERS MARK T ET AL: "Crystal structure of the quorum-sensing protein LuxS reveals a catalytic metal site." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES, vol. 98, no. 20, 25 September 2001 (2001-09-25), pages 11169-11174, XP002226665 September 25, 2001 ISSN: 0027-8424 the whole document</p> <p style="text-align: center;">--- -/--</p>	1-77

☒ Further documents are listed in the continuation of box C.☐ Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

10 January 2003

Date of mailing of the international search report

04/02/2003

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/30684

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	LEWIS H A ET AL: "A structural genomics approach to the study of quorum sensing: crystal structures of three LuxS orthologs." STRUCTURE (CAMBRIDGE, MASS.: 2001) UNITED STATES JUN 2001, vol. 9, no. 6, June 2001 (2001-06), pages 527-537, XP002226710 ISSN: 0969-2126 the whole document	1-77
A	BASSLER B L: "How bacteria talk to each other: regulation of gene expression by quorum sensing." CURRENT OPINION IN MICROBIOLOGY. ENGLAND DEC 1999, vol. 2, no. 6, December 1999 (1999-12), pages 582-587, XP002226666 ISSN: 1369-5274 the whole document	1-77

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 01/30684

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 63-71  
because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☒ Claims Nos.: 29-34, 42-44  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Claims Nos.: 63-71

Concerning claims 63-71, applicant's attention is drawn to R. 39(v) PCT. The subject-matter of claims 63-71 refers only to presentation of structural information on a machine-readable medium and is not regarded as patentable invention within the meaning of Rule 39(v) PCT. Thus, the above mentioned claims will not be searched.

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Continuation of Box I.2

Claims Nos.: 29-34, 42-44

Present claims 42-44 relate to a product "identified, designed or made according to the method of any of claims 1-41". Since none of the product has been disclosed in the application, the claims so lack support within the meaning of Art. 6 PCT, and the application so lacks disclosure within the meaning of Art. 5 PCT, that a meaningful search of said claims is impossible.

Present claims 29-34 relate to an extremely large number of possible methods. Due to the vague and unclear term "the binding pocket of LuxS protein or a binding pocket homolog" the claims contain so many options that a lack of clarity (and/or conciseness) within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible. Consequently, the search has been carried out for those parts of the application which do appear to be clear, namely claims 1, 14, 15 and 21.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.